AMENDMENTS TO THE CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the application:

Pending 50-54, 68-79

1-49. (Cancelled)

50. (Previously presented) A method of producing a human neural progenitor cell from a human ES cell, said method comprising:

obtaining a source of an undifferentiated human ES cell; and

culturing the ES cell in the presence of an antagonist of a BMP mediated default pathway of extra embryonic endoderm differentiation to differentiate the ES cell to a progenitor cell, wherein said progenitor cell lacks at least one marker of said undifferentiated ES cell; and

culturing the progenitor cell in a neural progenitor cell culture medium to obtain a neural progenitor cell.

51. (Previously presented) The method of claim 50 wherein the source of said undifferentiated human ES cell is selected from the group consisting of an embryo, a blastocyst, and a culture of undifferentiated embryonic stem cells.

52. (Previously presented) The method of claim 51 wherein said antagonist is noggin.

53. (Previously presented) The method of claim 52 wherein said noggin is a human or mouse noggin.

54. (Previously presented) The method of claim 52 wherein said noggin is a mouse BMP antagonist noggin comprising amino acid residues 20 to 232 of mouse noggin.

55. (Previously presented) The method of claim 52 wherein said noggin is in the range of 100 to 500 ng/ml.

56. (Previously presented) The method of any one of claims 50 to 55 wherein the ES cell is differentiated to a said progenitor cell is by culturing the ES cell in the presence of noggin for at least 5 days, wherein the noggin is in the range of 100 to 500 ng/ml.

57-67. (Cancelled)

68. (Previously presented) The method of claim 50 wherein said at least one marker of said undifferentiated ES cell is Oct-4 or cripto.

69. (Previously presented) A method of producing a human progenitor cell from a human ES cell, said method comprising:

obtaining a source of an undifferentiated human ES cell; and

culturing the ES cell in the presence of an antagonist of a BMP mediated default pathway of extra embryonic endoderm differentiation under conditions sufficient to differentiate the ES cell to a progenitor cell, wherein said progenitor cell lacks at least one marker of said undifferentiated ES cell, lacks a marker of neuroectoderm, and is capable of differentiating into a neural progenitor cell.

70. (Previously presented) The method of claim 69 wherein said antagonist is noggin.

71. (Previously presented) The method of claim 70, wherein the ES cell is cultured in the presence of noggin for at least 5 days.

72. (Previously presented) The method of claim 70 wherein said noggin is a human or mouse noggin.

73. (Previously presented) The method of claim 72 wherein said noggin is comprises amino acid residues 20 to 232 of mouse noggin.

74. (Previously presented) The method of claim 70 wherein said noggin is in the range of 100

to 500 ng/ml.

75. (Previously presented) The method of claim 69 wherein the source of said undifferentiated human ES cell is selected from the group consisting of an embryo, a blastocyst, and a culture of undifferentiated embryonic stem cells.

76. (Previously presented) The method of claim 69, wherein said at least one marker of said undifferentiated ES cell is Oct-4 or cripto.

77. (Previously presented) The method of claim 69, wherein said marker of neuroectoderm is nestin or Pax 6.

78. (Previously presented) The method of claim 69, wherein said progenitor cell is unreactive with any one of the antibodies selected from the group consisting of PHM4 recognising MHC Class 1 surface molecules, anti-desmin, UJ13A reactive with polysialylated N-CAM, Cam 5.2 reactive with low molecular weight cytokeratins, AMF reactive with vimentin intermediate filaments, antibody to 160 kDa neurofilament protein, GCTM-2 reactive with a proteoglycan present on the surface of ES cells, TG42.1 reactive with a 25 kDa protein which copurifies with the proteoglycan recognised by GCTM-2 and is found on stem cells and other cell types, and monoclonal antibody GCTM-5 reactive with a molecule present on a small proportion of cells in spontaneously differentiating human ES cell cultures.

79. (Previously presented) The method of claim 69, wherein said progenitor cell, upon further culturing in a neural progenitor culture medium, differentiates into said neural progenitor cell.

80-83. (Canceled)

CLAIMS

1. A method for modulating spontaneous differentiation of a stem cell, which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor.

2. A method for modulating spontaneous differentiation of a stem cell, which method comprises incubating the stem cell in the presence of a ligand of a class III tyrosine kinase receptor.

3. A method for modulating spontaneous differentiation of a stem cell, which method comprises incubating the stem cell in the presence of an agonist of a LPL receptor and a ligand of a class III tyrosine kinase receptor.

4. A method according to claim 1 wherein the modulation is inhibition of differentiation.

5. A method according to claim 1 wherein the LPL receptor is selected from the group consisting of S1P1, S1P2, S1P3.

6. A method according to claim 1 wherein the agonist is a phospholipid.

7. A method according to claim 6 wherein the agonist is selected from the group consisting of S1P, dihydro S1P, LPA, PAF and SPC or functional equivalents thereof.

8 A method according to claim 7 wherein the agonist is S1P or functional equivalent thereof.

9. A method according to claim 7 wherein the agonist is dihydro S1P or functional equivalent thereof.

10. A method according to claim 2 wherein the tyrosine kinase receptor is PDGFR-α or PDGFR-β.

11. A method according to claim 2 wherein the ligand is a PDGF or functional equivalent thereof.

12. A method according to claim 11 wherein the PDGF is PDGFaa, PDGFab or PDGFbb.

13. A method according to claim 1 comprising use of TNF alpha, NGF (nerve growth factor),a muscarinic acetylcholine agonist, or a serum or phorbol ester.